

REMARKS

Claim 53 is allowed. Applicants gratefully acknowledge the Examiner's indication of allowable subject matter.

The Examiner rejected claims 1, 2, 4-10, 14, 15, 17, 23, 24, and 36-51 under 35 U.S.C. §103(a) as allegedly being unpatentable over Mase et al. and further in view of Moslchi et al. (U.S. Patent 4,715,937).

Applicants respectfully traverse the §103(a) rejections with the following arguments.

35 U.S.C. §103(a)

The Examiner rejected claims 1, 2, 4-10, 14, 15, 17, 23, 24, and 36-51 under 35 U.S.C. §103(a) as allegedly being unpatentable over Masc et al. and further in view of Moslehi et al. (U.S. Patent 4,715,937).

Applicants respectfully contend that claim 1 is not unpatentable over Masc in view of Moslehi, because Masc in view of Moslehi does not teach or suggest each and every feature of claim 1. For example, Masc in view of Moslehi does not teach or suggest:

“laser trimming the polysilicon portion by a film growth method selective to laser-absorbing polysilicon” (emphasis added) (claims 1, 2, and 4-7);

“laser trimming at least one unmasked polysilicon portion intended for a p-channel device by a film growth method selective to laser-absorbing polysilicon” (emphasis added) (claims 14, 15);

“laser trimming at least an electrically significant portion of the polysilicon portion by a film growth method selective to laser-absorbing semiconductor material” (emphasis added) (claims 23-24, 42, and 47-50); and

“laser trimming at least an electrically significant portion of one unmasked polysilicon portion intended for a p-channel device by a film growth method selective to laser-absorbing polysilicon” (emphasis added) (claims 36 and 37).

Applicants contend that Mase does not teach laser trimming for film growth. In fact, Mase does not even mention the use of a laser for any purpose.

Applicants contend that Moslehi does not teach laser trimming for film growth, because laser trimming can grow films of no greater than 25 angstrom thickness. See Moslehi, col. 2, 8-14 (describing laser trimming as prior art that can grow film thicknesses of up to 25 angstroms). Moslehi requires forming nitride films of up to 100 angstrom thickness (see Moslehi, col. 1, lines 42-44), which cannot be achieved by laser trimming. Indeed, Moslehi teaches away from using laser trimming. See Moslehi, col. 2, lines 40-41 ("a difficulty with the techniques described in the references cited above is that the films are of insufficient thickness"). Instead of teaching laser trimming and other techniques incapable of growing films up to 100 angstroms, Moslehi teaches that Moslehi's invention "incorporates a process comprising direct plasma nitridation of silicon performed at low temperatures (500° C. or less) utilizing nitrogen plasma generated by microwave discharge". Moslehi, col. 2, lines 53-56.

In addition, Applicants respectfully contend that claims 1, 2, 4-10, 14, 15, 17, 23, 24, and 36-51 are not unpatentable over Mase in view of Moslehi, because Mase cannot be combined with Moslehi. Applicants respectfully contend that the Examiner has not provided a persuasive reason for combining Mase and Moslehi. The Examiner alleges: "It would have been within the scope of one of ordinary skill in the art to combine the teachings of Mase et al and Moslehi et al to enable the gate conductor trimming step of Mase et al to be performed and also to obtain ultra-thin high quality insulators (Moslehi et al. Column 1, lines 15-18)". In response, Applicants contend that the "ultra-thin" aspect of insulator referred to by the Examiner provides a persuasive reason why one of ordinary skill in the art would not combine the teachings of Mase et al and

Moslehi, based on the following argument.

Mase requires silicon nitride films of 50 to 150 nanometers which is equivalent to 500 to 1500 angstroms (see Mase, col. 10, lines 66-67). Thus, Moslehi's disclosure makes it clear that use of a laser to grow a thermal oxide on silicon cannot form a silicon nitride film of the thickness (i.e., 500 to 1500 angstroms) required by Mase, since Moslehi asserts that laser trimming cannot grow a thickness of more than 25 angstroms, as explained *supra*. Therefore, use of laser trimming (which grows films not exceeding 25 angstroms as disclosed by Moslehi) to grow a thermal oxide on silicon (as required by Mase) would destroy Mase's invention, since Mase's invention requires 500 to 1500 angstroms thick films which is well beyond the capability of laser trimming. Thus, Applicants respectfully contend that one of ordinary skill in the art would not combine the teachings of Mase and Moslehi "to obtain ultra-thin high quality insulators" as alleged by the Examiner. Accordingly, Applicants respectfully contend that the Examiner has not established a *prima facie* case for obviousness in relation to claims 1, 2, 4-10, 14, 15, 17, 23, 24, and 36-51, and the rejection of claims 1, 2, 4-10, 14, 15, 17, 23, 24, and 36-51 under 35 U.S.C. § 103(a) is therefore improper.

Furthermore with respect to claims 8-10, 17, 38-41, 43-46, and 51, the Examiner alleges that "it would have been a matter of routine optimization within the teachings of Moslehi et al and Mase et al to determine suitable exposure pulses, depths, energy, pressure, and flow to achieve Mase's et al trimmed gate conductor step." In response, Applicants contend that it would require substantial experimentation to determine suitable exposure pulses, depths, energy, pressure, and flow to achieve Mase's trimmed gate conductor step using laser trimming as taught

by Moslehi. However, regardless of the level of difficulty required to achieve Mase's trimmed gate conductor step using laser trimming as taught by Moslehi, the Examiner has not demonstrated that the values of exposure pulses, depths, energy, pressure, and flow so arrived at would teach or suggest the values of exposure pulses, depths, energy, pressure, and flow recited in claims 8-10, 17, 38-41, 43-46, and 51.

Applicants respectfully contend that in order to establish obviousness with respect to claims 8-10, 17, 38-41, 43-46, and 51 based on Mase and Moslehi, the Examiner is required to cite additional prior art references which teach or suggest the values of exposure pulses, depths, energy, pressure, and flow recited in claims 8-10, 17, 38-41, 43-46, and 51, and to provide a persuasive reason for modifying Mase with the teachings or suggestions of said additional prior art references.

Based on the preceding arguments, Applicants respectfully maintain that claims 1, 2, 4-10, 14, 15, 17, 23, 24, and 36-51 are not unpatentable over Mase in view of Moslehi, and that claims 1, 2, 4-10, 14, 15, 17, 23, 24, and 36-51 are in condition for allowance.

CONCLUSION

Based on the preceding arguments, Applicants respectfully believe that all pending claims and the entire application meet the acceptance criteria for allowance and therefore request favorable action. If the Examiner believes that anything further would be helpful to place the application in better condition for allowance, Applicants invites the Examiner to contact Applicants' representative at the telephone number listed below.

Date: 01/05/2004

Jack P. Friedman
Jack P. Friedman
Registration No. 44,688

Schmeiser, Olsen & Watts
3 Lear Jet Lane, Suite 201
Latham, New York 12110
(518) 220-1850